

AMENDMENT UNDER 37 C.F.R. § 1.312
U.S. Application No. 10/705,251
Attorney Docket No. Q78440

wherein said precursor is irradiated with an ion beam at least once following said degreasing in said step of forming said ferroelectric film.

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43. ~~42~~ (Currently amended) The method for manufacturing a ferroelectric device according to claim 40-claim ~~42~~ or claim 41, wherein said ferroelectric film contains a solid solution of $\text{PMN}_y\text{-PZT}_{1-y}$ consisting of a relaxer material PMN comprising any of the compounds $\text{Pb}(\text{M}_{1/3}\text{N}_{2/3})\text{O}_3$ ($\text{M} = \text{Mg, Zn, Co, Ni, Mn; N} = \text{Nb, Ta}$), $\text{Pb}(\text{M}_{1/2}\text{N}_{1/2})\text{O}_3$ ($\text{M} = \text{Sc, Fe, In, Yb, Ho, Lu; N} = \text{Nb, Ta}$), $\text{Pb}(\text{M}_{1/2}\text{N}_{1/2})\text{O}_3$ ($\text{M} = \text{Mg, Cd, Mn, Co; N} = \text{W, Re}$) or $\text{Pb}(\text{M}_{2/3}\text{N}_{1/3})\text{O}_3$ ($\text{M} = \text{Mn, Fe; N} = \text{W, Re}$) or mixed phases of these compounds, and $\text{Pb}(\text{Zr}_x\text{Ti}_{1-x})\text{O}_3$ (PZT, $0.0 \leq x \leq 1.0$), and is oriented in any of the orientations of a cubic crystal (100), tetragonal crystal (001), rhombohedral crystal (100) or quasi-cubic crystal (100).

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42. ~~43~~ (Previously presented) A method for manufacturing a ferroelectric device, the method comprising:

forming a bottom electrode on a substrate by an ion beam assist method, wherein by irradiating ion beams on the bottom electrode, said bottom electrode has a specific crystal orientation;

forming a ferroelectric film on top of said bottom electrode by an ion beam assist method, wherein by irradiating ion beams on the ferroelectric film, said ferroelectric film has a specific crystal orientation; and

forming a top electrode on top of said ferroelectric film.